

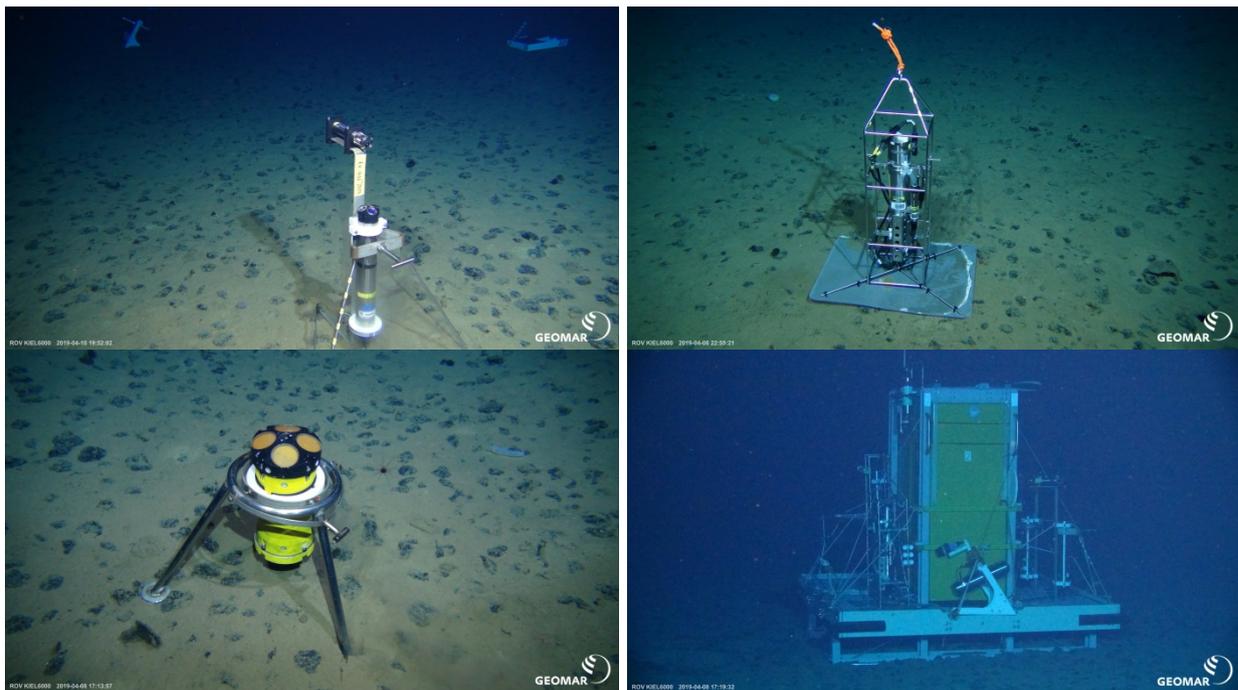
SO268/2

2nd Weekly Report

7–13 April 2019



During the second week at sea, we have continued to characterize the state of the manganese nodule ecosystem in the area of the planned small-scale sediment plume experiment. A total of five box cores and ten multiple cores was sieved for fauna, ten multiple cores and ROV push cores were analysed for nutrients, trace metals and microbial activity, the nodule habitat was mapped along 20 nautical miles of OFOS seafloor photo surveys, and during two dives of ROV Kiel6000 the benthic oxygen consumption was measured and several nodule-associated organisms were sampled. Four moorings were deployed along a 100 kilometer long north-to-south stretching transect to characterize bottom current velocities and directions, especially during passage of the approaching eddy (see last week's report).



*Photos (ROV Kiel6000): Suite of hydroacoustic and optical sensors that have been transported to the seafloor in a water depth of 4121 m by an elevator (bottom right) and were distributed by the diving robot ROV Kiel6000 in a sensor network in order to observe the temporal and spatial spread of the sediment plume.*

An array of some sixty different acoustic and optical sensors was installed during two additional ROV dives in order to monitor the sediment plume experiment. The colleagues have been preparing the sensors for this deployment since we left Manzanillo two weeks ago. However, this task had already started in early December, when the sensors were inter-calibrated at NIOZ in Texel and at Jacobs University in Bremen to ensure comparability of

the various sensor readings during the experiment. The sensor network will allow us to determine the spread of the sediment plume after its creation and while it is distributed and dissipated by bottom currents. In the night of Wednesday to Thursday we towed a chain dredge in eleven parallel, about 500-m long tracks across the seafloor, thereby suspending the sediment into the near-bottom water column. Directly afterwards we sampled the bottom waters and the seafloor in and around the dredge tracks and mapped the area using the OFOS video sled. This will provide us with a first impression of the produced disturbance as well as the size of the area impacted by the deposition of sediment plume material. The sensor array will stay at the seafloor for the following weeks to also witness the resuspension of the freshly deposited material due to the eddy passing through the area.

Saturday night we started our transit to the Belgian contract area, where we will complete the investigations that had been started during the first leg of this cruise.

On behalf of all SO268 participants,

Matthias Haeckel